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ABSTRACT

A research study evaluated the effect of televised (vicarious) models on children's occupational perceptions relevant to career decision making. It was hypothesized that (1) viewing nontraditional occupational sex role models would decrease occupational sex-typing, (2) decrease in occupational sex-typing would be enhanced by social approval (reinforcement), and (3) decrease in sex-typing would generalize to nonmodeled occupations. The treatment stimulus was a career education videotape. Version 1 consisted of seven occupations portrayed by traditional sex role models and version 2 of nontraditional models. A reinforcement component administered by the classroom teacher was added to one of the nontraditional treatment groups, in the form of social approval. Subjects were three classes of second graders and four classes of third graders in Pasco, Washington. Classrooms were randomly assigned to four treatment groups which viewed the traditional career education videotape, viewed the nontraditional one, viewed the nontraditional one and participated in a discussion session, or served as control group. A Select-A-Worker pretest/posttest measured change in children's sex-typing of occupations and effect of vicarious modeling on personal choice. Data strongly supported the nontraditional modeling effect, did not support increased effectiveness of reinforcement, and tended to disconfirm a generalization effect. (YLB)

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THE ROLE OF TELEVISION MODELS IN CHILDREN'S CAREER DECISION-MAKING

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By

LONNIE JEAN DUNLAP

A thesis submitted in partial fulfillment of
the requirements for the degree of

MASTER OF ARTS

WASHINGTON STATE UNIVERSITY
Program in Child Development

1979

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THE ROLE OF TELEVISION MODELS IN CHILDREN'S CAREER DECISION-MAKING

ABSTRACT

by Lonnie Jean Dunlap, M.A.
Washington State University, 1979

Chairman: Dorothy Z. Price

The purpose of the research was to evaluate the effect of televised (vicarious) models on children's occupational perceptions relevant to career decision-making. It was hypothesized that 1) viewing nontraditional occupational sex role models would decrease occupational sex-typing; 2) decrease in occupational sex-typing would be enhanced by social approval (reinforcement); and 3) decrease in sex-typing would generalize to nonmodeled occupations.

The treatment stimulus was a career education videotape ("Have you Considered . . . ?") specifically produced for this research project. Version one consisted of seven occupations portrayed by traditional sex role models and version two of nontraditional models (reversed) for the same occupations. The videotapes were the same except for the gender of the models. In addition, a reinforcement component was added to one of the nontraditional treatment groups, in the form of social approval, to encourage elimination of occupational segregation; this was administered by the classroom teacher.

The measure of the dependent variable was the "Select-A-Worker" instrument, containing a list of twenty occupations, and included the seven modeled occupations. Asking "Who could do this job--a man, a woman, or both?"

the instrument was used to measure the amount of change in children's sex-typing of occupations. Another section asked the students which occupations they "most liked" and "least liked"; this determined the effect of vicarious modeling on personal choice.

The subjects were elementary students recruited from the community of Pasco, Washington, via the Washington State University-Pasco Teacher Corps Project. Participating in this study were three classes of second graders, four classes of third graders (total N=151), and their teachers. Classrooms were randomly assigned to one of four groups: Treatment 1--viewed the traditional career education videotape; Treatment 2--viewed the nontraditional career education videotape; Treatment 3--viewed the nontraditional career education videotape and participated in a discussion session on the advantages of removing occupational sex role stereotypes; and Treatment 4--served as control group and was not exposed to career education material. The Select-A-Worker instrument was given as a pretest two weeks prior to experimental intervention. This instrument was administered again immediately following the assigned treatment condition (Posttest 1) and two weeks later (Posttest 2).

The data strongly support the nontraditional modeling effect (Hypothesis 1), do not support increased effectiveness of reinforcement (Hypothesis 2), and tend to disconfirm a generalization effect (Hypothesis 3). The results are discussed in terms of their implications for television and occupational socialization and suggestions are offered for family and school use of the televised media.

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CHAPTER 1

INTRODUCTION

Television is reputed to be one of our most pervasive and influential transmitters of modern culture. As such, it has drawn the attention of researchers interested in media and socialization. Studies in such areas as the consequences of televised violence (Comstock & Rubenstein, 1972b; Feshbach & Singer, 1971; Freidrich & Stein, 1973; Murray, 1976), as prosocial behavior (Coates, Pusser, & Goodman, 1976; Moore, 1977; Poulos, Rubenstein & Liebert, 1975), as educational programming (Ball & Bogatz, 1970, 1971; Lesser, 1974), and as the effects of advertising (Ward, 1976) have begun to form an empirical base, especially with regard to child viewers. However, television's influence on other critical areas of growth and behavior has not received adequate attention. One such neglected topic is the investigation of how the television media shapes work attitudes and vocational development.

Statement of the Problem

It is becoming increasingly evident that even though the acquisition and performance of a "job" does not typically occur until young adulthood, early childhood experiences are important to career development. Many investigators in the field of occupational socialization recognize the relevance of early experiences and the developmental aspect of vocational attitudes and behaviors (Borow, 1966, p. 376; Leifer & Lesser, 1976; Moore, 1969;

Slocum, 1974, p. 8).[1] Leifer & Lesser (1976) conclude "young children do develop concepts about careers very early in their lives, but because their information and experience are fragmentary, their concepts are narrow and stereotypical. And that once early stereotypes are formed . . . they persist into adolescence with only superficial improvement . . ." (p. 40). If we believe that it is important to broaden children's perceptions of career considerations and options, and that it is necessary to provide accurate occupational information, it is essential that we know more about the formation and change of occupational concepts.

For most of this generation's children, television presents the first impressions of work outside the home. In the past, occupational information has been primarily transferred on an informal basis through interaction with family members and personal community experiences (Blocher, 1973). With more geographical separation of families and the increased isolation of the individual from personal vocational experiences in the community, we can see a trend away from these informal sources of career information and occupational socialization.

This change in the transmission of occupational information is occurring at the same time the work force itself is changing; work sites are increasingly removed from community visibility and specialization and and technological changes mean work roles are less understandable (Miller, 1973).

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[1]The concept of occupational socialization is herein used in the tradition represented by Moore, (1969) and Slocum (1974). In his review chapter on occupational socialization Moore (1969) says an occupation is a social construct and its performance is a social role or set of roles. By socialization he means both cognitive learning and at least minimal internalization of appropriate norms (p. 868). Slocum (1974) more specifically defines occupation as "the kind of work an adult does on a regular basis" (pp. 4-5); socialization "designates the process of internalization of the cultural imperatives" (p. 8).

Educators responsible for providing career preparation experiences for students are operating under the same limitations on access to career information, resulting in, as Marland (1974) notes, "systematic and institutionalized isolation of students from work apart from the classroom . . ." (p. 34). It is suggested then that the traditional informal (family and community) and formal (work and school) sources of information about the world of work are becoming less available. A third source--the media, specifically television--may be evolving as the primary substitute. The result of this is to increase the importance of vicarious sources of occupational knowledge, as noted by DeFleur and DeFleur (1967).

Other social scientists recognize this development. Noble (1975) sees television emerging as a "new community", providing the learning and socialization experiences offered by the "village" type community of the pre-industrial era. This is done "by exposing disparate individuals to the same familiar content, which is remarkably repetitive . . ." (p. 11). It is important that we begin to evaluate the effect of viewing this "representational community of workers" on our young viewers who comprise our future work force. What kind of workers are visible to the viewers of this community? Is it accurate in its portrayal of the work force? Is it affecting the behavior of the viewers? The research undertaken is an effort to begin to evaluate the role of television in children's career development.

Theoretical Justification

Social learning theory (Bandura, 1971, 1977b) was chosen as a basis for this research investigation for a number of reasons. First of all, its components allow for operational definitions that can be tested empirically. Second, it recognizes "virtually all learning phenomena resulting from direct experience can occur on a vicarious basis through observation of other

people's behavior and its consequences for them. Man's capacity to learn by observation enables him to acquire large, integrated units of behavior by example . . ." (Bandura, 1971, p. 2), and can be applied to "molar or global behaviors" such as career exploration behaviors (Kunce, Bruch, & Thelen, 1974, p. 510). It can be tested as an explanatory model for behaviors (including vocational) theoretically acquired from viewing television. Liebert, Neale, & Davidson (1973), and Kniveton (1976), have conducted research on the effects of television using a social learning approach.

A third justification of this theory is that, as Chapter 2 will reveal, occupational sex-typing emerges from the research findings as directly relevant to both the independent variable (television viewing) and the dependent variable (children's career choice behavior). Mischel (1970), one of the most prominent researchers in the field of social learning, applies this theory in his review chapter on sex-typing. He indicates that "From the viewpoint of social learning theory, sex-typed behaviors may be defined as those that are typically more expected and approved for one sex than for the other and that lead to different consequences when performed by males as opposed to females in the particular community . . ." (p. 43). He also concludes that the acquisition, performance, and maintenance of these behaviors can be explained by social learning processes.

Description of Research

The research conducted is a field experiment designed to examine the effects of television models on the occupational sex role preference of second and third grade children. The researcher provided one group of children with traditional sex role career models (for example, female nurse and male firefighter) in a career education videotape, a second group with nontraditional career models (for example, male nurse and female firefighter),

a third group with the same nontraditional career models plus a discussion session conducted by their teacher for the purpose of administering social approval (reinforcement) for statements in the direction of nontraditionality. A fourth group acted as the control group and was excluded from the experimental treatment, ensuring that any significant results obtained in the treatment groups were due to viewing the videotape.

The dependent measure was the children's response to a "Select-A-Worker" instrument which asked "Who should do this job--a man, a woman, or both" of twenty occupations, seven of which are included in the videotape. This measure is an adaptation of similar measures used by Barclay (1974), Scheresky (1976, 1977) and Shepard and Hess (1975). The data resulting from this experimental procedure gives information to evaluate what role vicarious models play in influencing children's occupational behavior and to what extent reinforcement facilitates these behaviors. Three hypotheses were tested:

Hypothesis 1. Providing symbolic models showing men and women in nontraditional occupational roles through video means will decrease sex-typing children apply to occupations.

Hypothesis 2. This decrease in occupational sex-typing will be enhanced by social reinforcement administered through the discussion of the advantages of eliminating occupational segregation.

Hypothesis 3. Nontraditional choices for the modeled occupations will generalize to nontraditional choices for nonmodeled occupations.

Limitations of Research

Television research is subject to methodological problems which must be recognized. The direction of causality is often difficult to establish; television viewing behavior can be seen as an interactive process. A viewer may select or react to programs because of personal characteristics or predispositions rather than simply absorb the communication (McLeod and O'Keefe, Jr., 1972). The data analysis examines and response patterns that would vary due to sex or ethnic group.

A second problem related to causality is the isolation of the effects of television viewing from the effects of family and culture. However, random assignment of the school classes in the sample to any of the treatment groups or the control group, and the use of pretest measures to establish a baseline from which to measure change, would indicate that any significant results would be due to the effect of experimental intervention.

There are at least two factors to be considered as limitations that result from the research setting that diminish generalizability to home television viewing. Most television is viewed at home and is frequently watched while engaging in other activities (McLeod & O'Keefe, Jr., 1972).

A second limitation of the research setting is motivation for viewing. The children in the school classroom were directed to watch the career education program in the manner of "We are going to watch a program about people working in different jobs" given by their teacher. The students in the second and third grades may have attached an "educational" component to viewing the videotape. As Comstock (1975) reports, the primary reason for watching television is usually for entertainment.

CHAPTER 2

REVIEW OF LITERATURE

The chapter begins with a brief overview of the modeling process as used in social learning theory. Next, the general field of research on children's occupational choice behavior is reviewed, consisting of a section on empirical studies of children's personal occupational preferences and a section on children's occupational sex-typing. The third major review area is the study of television and children's occupational socialization. This topic will be subdivided into descriptive studies (characteristics of the medium and of the viewers), correlational research which offers evidence connecting television viewing and vocational behavior, and experimental work which attempts to directly affect a change in occupational behavior by vicarious modeling techniques.

Social Learning Theory and the Modeling Process

There is a vast amount of research on observational learning, as acientists have long recognized the human ability to acquire behavior by watching others. Bandura and his colleagues have added to this research by including in the concept of observation the role of symbolic representation (symbolic modeling) in learning and maintaining behaviors. "Social learning theory assumes that . . . observers acquire mainly symbolic representations of modeled activities rather than specific stimulus-response associations" (Bandura, 1971, p.6). In addition, Bandura concludes that "There is a large body of research evidence showing that both children and adults can acquire

attitudes, emotional responses, and new patterns of behavior as a result of observing filmed or televised models . . ." (Bandura, 1971, p. 10). Therefore, the modeling process, which encompasses vicarious modeling, can be profitably investigated as an influential source of social behaviors--including sex-typing--as Mischel (1970) concludes in his review entitled "Sex-typing and Socialization".

In social learning literature, the terms imitation, identification, and observational learning are subsumed under the concept of modeling (Bandura, 1969; Mischel, 1970). Bandura has identified four components of the modeling process--attention, retention, motor reproduction, and motivational subprocesses (see Figure 1) which explain the different outcomes of observational learning (Bandura, 1969, 1971, 1974, 1977b, pp. 22-29). Each of these components will be discussed in turn.

The first component, "attentional subprocesses", relates to sensory input and entails such variables as perceptual predisposition and salience of information. Characteristics of the model and of the observer such as sex and ethnicity (Cook & Smothergill, 1973; Macoby & Jacklin, 1974, pp. 293-302), social position (Mischel & Grusec, 1966), and competency (Bandura, 1969, p. 222) determine if and how the stimuli will be perceived (Kniveton, 1976, pp. 242-248). (See Mischel, 1970, pp. 32-37 for a detailed discussion on characteristics of the model and sex-typing.) Barkley, Ullman, Otto, & Brecht, (1977) offer evidence that sex appropriateness of the modeled behavior may be more crucial to imitation than the sex of the model. The attentional process is particularly relevant to explain different results from initial exposure to occupational information; for example, a career education unit on construction workers will be differentially received in a classroom by the students. Also considered as attentional processes is

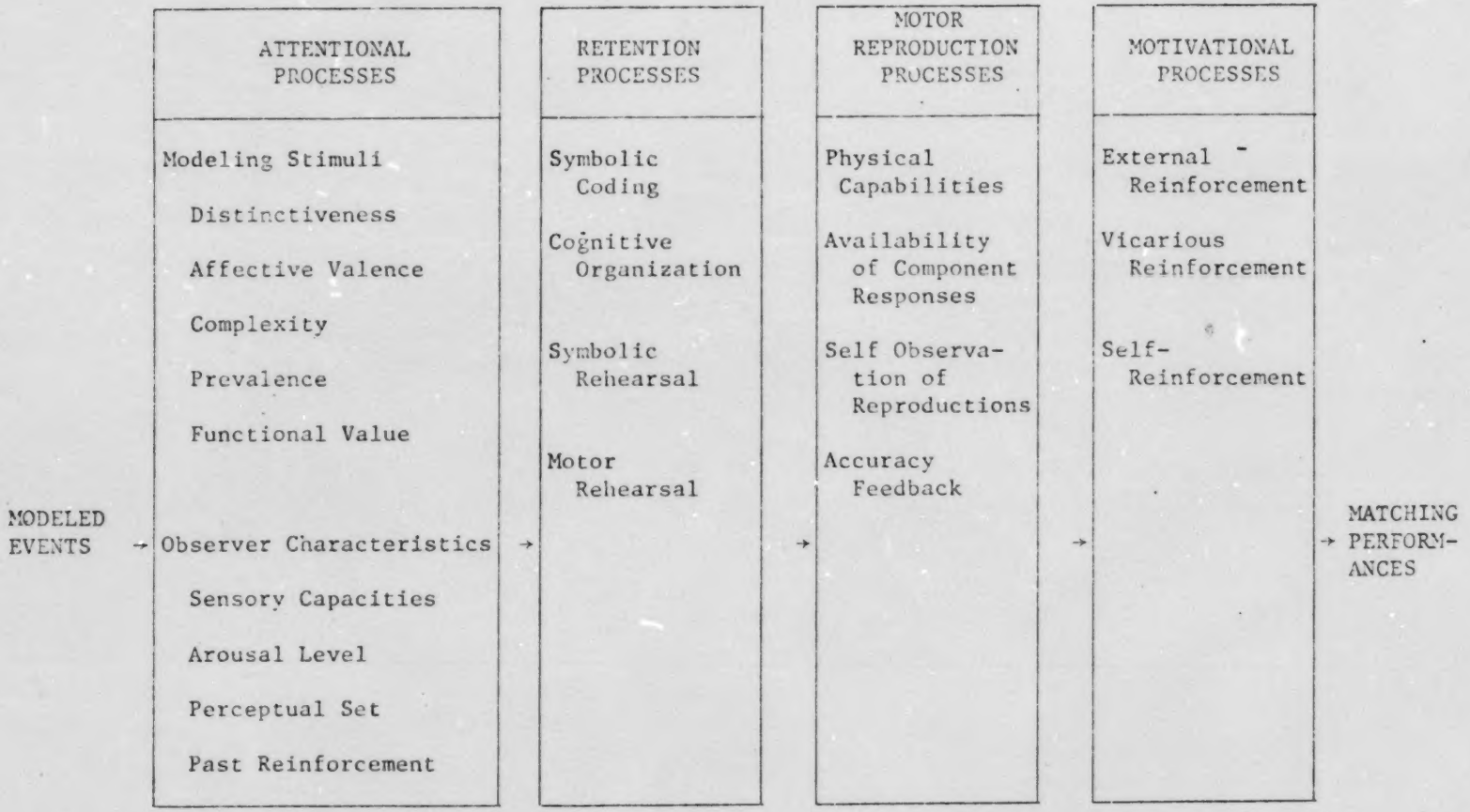

Figure 1. Component processes governing observational learning in the social learning analysis. (SOURCE: Albert Bandura, SOCIAL LEARNING THEORY, © 1977, p. 23. Reproduced by permission of Prentice-Hall, Inc., Englewood Cliffs, New Jersey.)

"incidental learning". This refers to responses acquired from observational learning that are different from the intended "discriminative" response (Bandura & Huston, 1961). In addition to the characteristics of the modeled event, Bandura recognized that "Some forms of modeling are intrinsically rewarding that they can hold the attention of people . . . for extended periods. This is nowhere better illustrated than in televised modeling" (Bandura, 1971, p. 6; 1977b).

"Retention processes" are the second of the subprocesses involved in observational learning. Symbolic coding, cognitive organization, and rehearsal factors come into play to affect how the modeled stimuli are used by the individual. This information processing aspect of modeling allows the observer to classify events, attribute meaning to them, and to draw conclusions. Stimuli become meaningful through association in paired experience (Bandura, 1971, p. 12), or by "being correlated with differential response consequences" (Bandura, 1971, p. 17). Those cognitive mediations that result in symbolic constructions form a personal frame of reference and allow decision-making to occur because they serve "as a guide for action" (Bandura, 1977b, p. 192). As an example, Bandura has identified "self-efficacy expectations" as a mediational cognitive construct (Bandura, Adams, & Beyer, 1977). Changes in developmental stages of the life cycle also must be considered as part of these cognitive processes (Bandura, 1977b, pp. 29-34). That children interpret and rehearse adult roles is evident in their social play, an example of anticipatory socialization that is part of the retention process.

In addition to the subprocesses of attention and retention, a third component of the modeling process is identified by Bandura. This consists of "motor reproduction processes" and includes such elements as the individual's skill level and opportunity for the response to be performed (Bandura, 1977b). This step is the behavioral (encompassing attitudinal and emotional)

"matching response" that results from observing the modeled event. This response may be integrated into part of a broader "response class" by the observer (Bandura, 1971), as for example, with the delay of gratification behavior (Yates, 1974). The fourth component of the modeling process, "motivational processes" entails external and vicarious reinforcement and self-reinforcement. (For a discussion of self-reinforcement, see Bandura (1976), "Self-reinforcement: Theoretical and methodological considerations.") The role of reinforcement, a crucial part of social learning theory, will be elaborated upon.

Bandura (1974) notes a major theoretical development when he states, "Thus reinforcement, as it has become better understood, has changed from a mechanical strengthener of conduct to an informative and motivating influence" (p. 860). Of the three forms of reinforcement (direct, vicarious, and self-regulation), vicarious reinforcement is the most relevant to this discussion. Through observing response consequences of the model's behavior, an expectancy of reward or punishment is created in the observer (Mischel, 1970). It is this information which influences whether the observer performs the behavior or not, depending on social sanctions, social appropriateness, and so forth. (See Mischel, 1970, pp. 41-57 for a detailed discussion on performance of sex-typed behaviors.) The role of reinforcement, then, becomes not one of creating new behaviors, but serves to inhibit or facilitate the performance of learned responses (Bandura, 1971, 1977b).

As with attentional processes, the motivational process has important variables related to the effectiveness of reinforcement. In addition to structural aspects of the reinforcement such as timing and spacing of reward or punishment (Bandura, 1977b), the social context of the reward setting is a factor. One major consideration is the differential application of reward

which results in "comparative judgmental processes" (Bandura, 1977b, p. 123) of reward systems. In this way, it is "not the absolute magnitude of reward" but rather interpersonal contrast of rewarding treatment in interaction with other social variables such as characteristics of the model and of the observer (Bandura, 1965), including social position (Bandura, 1977b, p. 125), who administers the reward (Bandura, 1971), relational importance of the reward to the individual (Bandura, 1977b; p. 117; Mischel, 1970, p. 43), and sex of the model and of the observer (Mischel, 1970).

The emphasis on social comparison is consistent with the conclusions by Maccoby & Jacklin (1974) in their review chapter entitled "Differential socialization of boys and girls." Even though they reported a lack of empirical evidence to support direct "shaping" of sex stereotyped behavior, they found the data showed that "Boys seem to have more intense socialization experience than girls," and "receive more pressure against engaging in sex-inappropriate behavior," because boys receive a higher frequency of both positive and negative reinforcement (more praise and punishment) (p. 348). Thus, rewarding treatment or the lack of it becomes a motivational variable influencing the performance of sex-typed behaviors.

To summarize, there is evidence that individuals acquire behaviors and attitudes through vicarious or symbolic learning experiences. Cognitive processes play a role in assigning meaning to these experiences and an observer may learn new behavior without actually expressing them. In addition, performance of learned behaviors is governed by environmental stimuli, by cognitive considerations, and reward expectations (Bandura, 1978). The social learning approach offers a means of understanding vocational behaviors, including sex-typing, from information processing, cognitive development, and social influences aspect, and allows analysis on a personal, group, or societal level.

Occupational Choice and Sex-Typing

Following is a review of research on children's occupational choice behavior. This includes both studies that examine children's personal choice or preference and a review of the literature on occupational sex-typing.

Occupational Choice

While it could be said that asking children to make a "choice" regarding their vocation is "academic," there are at least two reasons why this procedure is valid. First of all, children do develop future images of themselves as adults (Leifer & Lesser, 1976; Looft, 1971; Singer, 1974). Second, their responses may be seen as observable behavior to objectify some of the conceptual processes related to career decision making. One difficulty in making conclusions from the research is that occupations are not unidimensional, nor are the motivations for expressed interest always clear. It could be said that for young children, choice reflects interest, an expression of an attraction to an area, or an intent of wanting to be socially acceptable. Even though it may not be clear what attribute or motivation is responsible for the child's response, the major finding from the following review is that sex-typing is a primary basis of classifying occupations.

Many investigators have elicited children's occupational preference by asking open-ended questions to the effect of "what do you what to be when you grow up?" The following ages were included in these studies: ages three and six (Beuf, 1974; Papalia & Tennent, 1975), first and second grade (Schlossberg & Goodman, 1972), second grade (Siegel, 1973), fifth grade (Iglitzen, 1972), and fourth, fifth, and sixth grades (O'Hara, 1962). The research shows consistent findings; that is, boys chose a far wider range of jobs and different types of jobs while girls generally limited themselves to

three or four stereotypical areas (teacher, nurse, mother/wife, secretary). That there was almost no overlap between the sexes is the most critical point. This pattern and the observation that girls were more likely to mention a domestic role (wife or mother) as their major adult occupational roles also were noted by Leifer & Lesser (1976) in their review of studies on children's career awareness.

Other researchers explored the concept of preference by providing the children with a preselected group of jobs (sometimes through pictures). Similar age groupings are represented as in the first group of studies: kindergarten students (Swick & Carlton, 1974; Weeks, Thornburg & Little, 1977), ages five through ten (O'Bryant & Corder-Bolz, 1978), third, fifth, seventh, ninth, and eleventh grades (Nelson, 1963), and ages nine through seventeen (Barnett, 1975). These researchers imposed a list of occupations on the children and requested an indication of their preferences. The results of these studies support the findings of work done with open-ended questioning, that is, the responses were highly segregated on the basis of sex.

Two studies from the above group attempted experimentally to alter sex-typed occupational preferences. Using non-traditional role models and curriculum for two weeks, Week et al. (1977) found a significant change in the comparison scores of boys and girls from pretest to posttest (N=39). The significance ($p < .05$) resulted, however, not from girls becoming more nontraditional, but from boys changing to more traditional responses. The authors attribute this to stronger social disapproval for males to take on female roles than for females to emulate males. O'Bryant & Corder-Bolz (1978) found girls increased their preferences significantly ($p < .001$) for male jobs after viewing specially produced commercials (over a one month period)

with women in nontraditional jobs. Boys' preferences for male jobs also increased while their preferences for female jobs decreased. Because the designs of these studies are different (the former asked preferences for one of a pair of male and female jobs while the latter did not include male models in the treatment), they allow only minimal empirical comparison. Both studies do present data to support significant response changes after modeling intervention.

Demographic variables other than sex were considered also by the previously reviewed studies on choice behavior. None of the researchers report significant variations of the sex-typing pattern by age, and Marini (1978) cites evidence of it continuing through adolescence. Swick & Carlton (1974) focused on rural children and report the trend is upheld. While the overwhelming number of studies had predominately (or all) white children in the sample, O'Bryant & Corder-Bolz (1978) in their sample of 67 did include white, black, and Mexican-American children. However, they report unclear comparisons due to the "small sample size and the confounding of school and ethnicity" (p. 243), and the authors recommend more research on ethnicity and occupational development. (Many investigators have recognized different vocational patterns for ethnic groups; Brief & Aldag, 1975; Leifer & Lesser, 1976; Levine, 1976; Picou & Campbell, 1975; Smith, 1975).

In addition to demographic variables, the factor of occupational knowledge should be considered in explaining sex-typing of choices. By comparing the research on occupational choice with that done on occupational knowledge, it is evident that knowledge of an occupation does not automatically include it for consideration for one's own options. De Fleur (1966), Nelson (1963), O'Bryant & Corder-Bolz (1978), and Wehrly (1973), found no major differences in occupational knowledge between boys and girls.

More information concerning the development of a basis of choice is available when the process of rejection of occupations as a "complex narrowing process" (Moore, 1969, p. 872) is explored. Nelson (1963) reports support for this concept. He identifies three major reference points that emerged from his study that children used to evaluate occupations: sex appropriateness, activity or interest, and status. (In reality, it may be difficult to separate these out.) He recognizes the importance of early rejection of occupations, noting that it is likely that these early conceptions of jobs will probably be the "points of reference to which newly encountered occupations are compared" (p. 753). The following discussion on occupational sex-typing will elaborate on this basis for occupational choice.

Occupational Sex-typing

The following studies use a similar measure of sex appropriateness to identify the extent to which boys and girls stereotype occupations on the basis of sex. The previous discussion suggests that this major dichotomous classification is one of the first criterion employed in the narrowing process which results in occupational foreclosure. An important qualification must be made, however. Overt evidence of stereotyped responses does not necessarily mean the individual applies this to his or her own covert decision-making processes.

By asking children who should do this job--a man, a woman, or both (or a slight variation)--these researchers have established that boys and girls do sex-type occupations. One of the earliest of these studies, Iglitzen (1972), used a sample of fifth graders (N=290), and found that boys and girls both stereotype. However, as shown by their slight increase in "both" responses on the questionnaire, girls were somewhat more "liberal."

An extension of the data to younger grades, first through fourth, was done by Tibbetts (1975). No significant sex differences were found between girls and boys as they both gave highly stereotypical responses to her list of thirty jobs.

Schlossberg & Goodman (1972) studied kindergarten and sixth graders, and Scheresky (1976, 1977) tested 270 six, eight, and ten year olds. No significant differences were reported between ages nor sexes and a high degree of gender-based responses were found. The most highly stereotyped occupations on Scheresky's (1976, 1977) list of fifteen were firefighter, truck driver, nurse, garbage collector, minister, and homemaker. Eighty-five to ninety per cent of the subjects indicated one sex only responses for these occupations. Schlossberg & Goodman (1972) included six traditionally male and six traditionally female pictorial representations of jobs and inquired "Could a man work here? Could a woman work here?" The children's responses excluded women more (78 woman only compared to 156 man only responses). The specific occupational scores are not reported in the data.

The study reported on by Shepard & Hess (1975) allows comparison of a wider range of age groups. They conducted a developmental study on kindergarten (N=60), eighth grade (N=68), college (N=86), and adult (N=54) subjects. Forty-three items listed in terms of role activity, for example, "put out fires" or "iron clothes" were given with instructions to indicate whether the role should be done by a male, a female, or either. The dependent measure was a "liberality" score reflecting the number of times the subject deviated from the traditional response. Significant sex differences were found (girls being more liberal) in the eighth grade ($p<.01$), the college (p .05) and the adult ($p<.05$) groups but not in kindergarten (p .31). Their data show a liberalization of attitude increasing from kindergarten to college and then diminishing in the adult group.

Only two investigators using this dependent measure attempted change of sex-typing through intervention techniques. Barclay (1974) compared the effect of traditional career information to books specifically aimed at broadening women's choices of careers to a control group of sixty-four kindergarteners' occupational sex-typing. The dependent measure was a pictorial test of twenty occupations with responses to "Who could do this job, a man, a woman, or both?" Most of the occupations were traditionally male, only three (nurse, teacher, secretary) were female, and the rest were "usual occupations" for either sex (for example, musician, laboratory worker), (p. 5). A significant treatment effect resulting from the nontraditional treatment group is reported, followed by the control group, and then by the traditional career information group. A significant interaction by sex also is reported in that girls in each group had more flexible choices than boys. The author concludes "that career information alone, without specific reference to the ability of women to do the jobs discussed, will only support and possibly reinforce the stereotypic view . . ." (p. 9). The nontraditional treatment was confounded by vicarious models in the literature used at the same time with discussion. The data analysis does not report responses to the specific occupations.

In addition to their previously mentioned measure of occupational preference, O'Bryant & Corder-Bolz (1978) also used the measure "Who should do this job--a man, a woman, or both?" to evaluate change in 67 children, ages five to ten years. The study interspersed cartoon programming viewed in the classroom with specially produced commercials with women in traditional and nontraditional roles. A significant difference ($p < .01$) was found between the responses of children who saw women in traditional roles and children who viewed the nontraditional from the pretest to the posttest.

The change in the measure is attributed to the effect of vicarious modeling. A significant sex difference was also found, but the average age of the girls was higher in the sample, so the sex comparisons could be affected by maturation as the authors' note.

In sum, the empirical work done on occupational sex-typing shows that children do perceive some occupations as more appropriate for one sex than the other, complying with Mischel's definition of sex-typed behavior (Mischel, 1970, p. 43). In addition, the section on personal occupational choice of children reflects an internalization of these norms for one's own behavior. Also, there is evidence that the process of classification and expressions of preference can be modified by the modeling process with variations depending on variables such as age and sex.

Television and Occupational Socialization

The purpose of this section is to review empirical work done on the relationship between television and children's occupational socialization. Much descriptive data is available to identify characteristics of the television viewers and television content. Second, correlational evidence is reviewed which relates television viewing with occupational behavior. Third, experimental work that attempts to modify occupational behavior through vicarious modeling intervention is examined.

Children and Television Viewing

Analyzing children's exposure to television can be examined in a variety of ways. First, it is possible to describe the characteristics of children as a viewing audience as Schramm, Lyle, & Parker (1961) did in their landmark study. This comprehensive work and an updated study done by Lyle & Hoffman (1971) provide the data most researchers use to describe the

child audience. The overall pattern is that children begin viewing television programs as part of the family environment as early as one and one-half to two years (Murray, 1976), typically increasing viewing with age until they reach adolescence (Comstock, 1975; Murray, 1976; Schramm et al., 1961). Lyle & Hoffman (1971) estimate that at least two hours a day are spent viewing television by preschoolers. Children are exposed to all kinds of programming, and programs not intended primarily for children take up a large portion of viewing time (forty per cent by first grade according to Maccoby, 1966). Thus, researchers are in agreement that television viewing is a primary, time-consuming activity of childhood.

Exposure to television also can be examined in terms of the individual child. These previously mentioned general trends are indicative of the total amount of exposure, but as Schramm et al. (1961) point out, what is important to consider is "what children do with television" (p. 169). Numerous studies report that individual differences and developmental aspects of the child must be recognized. An overview of the heavy television child viewer reveals lower socioeconomic status (Liebert, et al., 1973; Murray, 1976), more minorities after fourth grade (Liebert, et al., 1973), lower IQ (Liebert, et al., 1973; Maccoby, 1964), and children with few interests of their own (Kniveton, 1976). Relationships have been found between program preferences and age, sex, and race (Comstock, 1975). While the primary reason for watching television is for entertainment, von Feilitzen (1976) has found individual differences in what needs are satisfied with the use of TV, and J. Brown (1976) cautions that a child with a problem may use television as an escape. The family can be seen as a cosocializing force or can be treated as an intervening variable, modifying the influence of television (Brown & Linne, 1976). Family patterns of communication (laissez-faire,

protective, pluralistic, or consensual) are related to television viewing behavior (McLeod & Brown, 1976). The cumulative results indicate that social factors in the child's life that explain individual differences also explain variations in how children approach television.

Research on children and television (and on individual differences) is complicated by the existence of developmental differences. Collins (1975) has identified two dimensions relevant to comprehension of TV exposure: (a) "age-related changes in cognitive skills," and (b) "age-related changes in the bases for evaluating social acts . . . " (p. 37). Much of the information on cognitive skills of children as television viewers comes from studies on children and advertising, frequently applying Piaget's stages to comprehension of televised information (Ward, 1976; Ward & Wackman, 1973). Also, some data has resulted from investigations on how the child understands motivation and consequences for violence (Leifer & Roberts, 1972). Other researchers have found the aspects of separation of fantasy and reality in television to be related to developmental considerations of comprehension (Collins, 1975, pp. 35-43). The child less able to distinguish reality from fantasy and the child with less alternate experiences to balance exposure to television, will be more susceptible to television influence (Kniveton, 1976, pp. 246-248; Maccoby, 1964).

Television Content

The importance of studies on content of television is that they describe what information or representation is given to viewers about the social structure (Liebert, et al., 1973, p. 18). Much of the work in content analysis has examined the patterns of sex role presentations and this data on televised sex role stereotyping is reviewed first. Far fewer studies have included an examination of occupational roles, but, as the data shows, those that are available, reflect a distorted view of the labor market.

Donagher, Poulos, Liebert & Davidson (1975) have identified three aspects of content analysis as a basis for learning attitudes from television: (a) recognition, "frequency which groups appear on the screen,"(b) formal role status, "both occupational and social," (c) the specific character portrayals of individuals of various groups (pp. 1023-1024). While most content analyses consider the first two, many neglect the third--probably because of methodological complications.[2] The major conclusions from across types of programming is that the number of males far exceeds the number of female characters and that the characters are presented in the typical stereotypical pattern of active mastery for males and passive dependency for females. Racial groups are even less represented than females and also encounter racial and sexual stereotypes.

Investigators have usually focused on a particular part of programming. Gerbner (1972) examined prime time shows, Kaniuga, Scott, & Gade (1974) emphasized evening programming. The stereotypic trend was found in commercials (Courtney & Whipple, 1974), and in educational television (Dohrmann, 1975). All types of programming were considered by Women on Words and Images (1975), NOW National Capital Area Chapter (1973), U.S. Commission on Civil Rights (1977), Donagher et al. (1975). Barcus (1977) conducted a comprehensive analysis of children's shows; also focusing on children's shows were Nolan, Galst, & White (1977); Poulos, Harvey, & Liebert (1976); and Sternglanz & Serbin (1974).

Occupational presentations of course reflect the gender sex-typing of the previous studies. However, DeFleur (1964), found that occupational

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[2]There are methodological problems in content analysis like population limitations and sampling, length of time of the study, behavioral categorization and rater agreement. The last two are particularly difficult to apply to character portrayals.

segregation to be even worse than actual labor force representation, a finding upheld by Women on Words and Images (1975), Liebert et al. (1973), and the U.S. Commission on Civil Rights (1977, pp. 34-36). Another occupational distortion was noted by Kaniuga et al. (1974) in that few women were shown in dual careers--working women and mothers. The U.S. Commission (1977) finds a major change from 1969 to 1974 only for nonwhite women, but indicates this is primarily due to a small data base. The latter reports that "A discernible occupational field could not be identified for nearly half the female characters" (p. 34). DeFleur (1964), Kaniuga, et al. (1974), and the U.S. Commission on Civil Rights (1977), also recognize the stronge overrepresentation of professionals, especially as compared to blue-collar workers. In terms of occupational socialization, the community of workers portrayed is very different from the actual work force. Leifer, Gordon, & Graves (1974), concerned about the socialization effect being overlooked because of the high entertainment value of TV remind us "At the very least (TV) helps to socialize a new generation of children into an already existing pattern. To the extent that television does not reflect reality, it socializes children into a fictitious social system . . . " (p. 221). (See Rutstein, 1974, pp. 61-62 for an account of a personal disillusionment created by television's false expectations of the life of an attorney.)

Television and Occupational Behavior

The previous discussion establishes that television is an important source of exposure and that certain children are more exposed and affected by television. Available evidence (beyond descriptive) on television as an influence on occupational socialization is very limited. Some additional empirical work does correlate television viewing with aspects of occupational behavior, specifically sex-typing and occupational knowledge. Narrow ranges

of occupational choice are reported to be related to high degrees of televisi viewing by Beuf (1974). Freuh & McGee (1975) found a significant relationship ($p < .01$) between high amounts of television viewing and strong traditional sex role development. These studies support consistency of behavior from one area to another, but both variables (TV viewing and sex role development) could be explained by a third factor, for example, parenting.

A more direct examination was conducted by DeFleur & DeFleur (1966) on occupational knowledge resulting from television viewing. By comparing hypothesized sources of occupational information for children ages six to thirteen (consisting of lists of occupations most likely encountered in daily life, in television content, or in the general culture), they conclude "television is a more potent source of occupational status knowledge than either personal contact or the general community culture" (p. 787).[3] It is important to distinguish the type of information transmitted by TV. Role knowledge, which is a more relevant component of career decision-making than prestige rankings, was learned better through direct contact.

Vicarious Modeling and Occupational Behavior

Through experimental work more information becomes available, not only on modifying occupational behavior, but on its acquisition. Some studies using the modeling approach have been applied to adult occupational behavior (Krumboltz & Baker, 1973; Little & Roach, 1974). A few efforts have been made to change children's occupational sex-typing through nontraditional curriculum methods (for an overview, see Leifer & Lesser, 1976, pp. 54-60).

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[3]Their measure of role knowledge was a set of questions describing the work duties and setting; status knowledge was how accurately the children could rank the occupation in prestige hierarchies (DeFleur & DeFleur, 1976, p. 780).

Only two studies were found that attempted to influence children's occupational behavior through modeling intervention. O'Bryant & Corder-Bolz (1978) attribute significant changes in occupational knowledge ($p < .001$), in occupational sex-typing ($p < .01$), and in preferences for male or female jobs ($p < .006$) to vicarious television models presented to students' ages five through ten, over a one month period. Some significant sex interactions are also reported. The second study was conducted by Pingree (1978). Choosing 227 students in grades three and eight, the purpose of the study was to test the effect of nontraditional televised models. The models were viewed with different reality explanations of the characters (actors, real life, or just like commercials you see at home). The dependent measure (responses to questions on sex role attitudes) showed significant changes modified by the reality manipulation and age and sex were also intervening factors. The author offers that this is additional evidence that sex role attitudes may come from "incidental learning" because the commercials' main focus was the product, not the actor.

Thus far, most experimental work has been on other content areas such as Bandura's classic study on the effects of viewing agression (1963). Therefore, the principles of modeling and television viewing have been acquired from studies on other social behaviors. Liebert et al. (1973) have identified three steps to the modeling process: (a) exposure to modeling cues, (b) acquisition and recall, and (c) acceptance of the model's behavior as a guide for one's own (p. 41). Kniveton (1976) adds to this process two general conclusions to consider in observational learning that emerge from television research. First, some models will be more influential than others, and second, some viewers will be more susceptible than others.

By recalling the description of heavy viewers and those most easily influenced, it is probable that television affects most strongly those children most in need of positive occupational experiences.

The generalization of experimental work to the daily experiences of television viewers must be cautiously applied. R. Brown (1976) notes the unique problem with evaluating effects of viewing television. These can be loosely categorized as "short term effects," "more sustained effects," or lastly, "general amorphous consequences" resulting from prolonged viewing (p. 24). However, the modeling process does permit analysis at these different levels by dealing with research considerations of design, sampling, and measurement. (Ball, 1976, offers some methodological steps for recognizing and solving these problems.) The "general effects" referred to by Brown, those that are the most difficult to research are, perhaps, also the most critical. Because the effect of modeling results more from its inhibitory or facilitating properties rather than direct imitation (Liebert et al., 1973), it is even more difficult to identify.

In summary, the available data relevant to television and occupational socialization indicates that the generally recognized factors of age, sex, socioeconomic status, family, and developmental differences influence both the use of television as well as occupational concept development. Occupational behavior is seen as an integral part of the total individual, yet through isolation of variables, is able to be modified by the same learning process that explain other social behavior.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

This study was conducted in the spring of 1978 in Pasco, Washington. It was a field experiment designed to examine the effects of videotaped career models on the occupational sex-typing of second and third grade children. It also evaluated the role of social approval (reinforcement) in changing occupational stereotypes. The transference of response from modeled occupations to nonmodeled (generalization) was analyzed as well. The overall goal was to identify ways to assist children to broaden their vocational considerations. The following elements of the research project will be discussed: hypotheses, subjects, independent and dependent variables, treatment conditions and procedures of the study.

Hypotheses

The previous review of literature suggests that television is a socializing factor in children's career development. One objective of this research was to identify the effect of televised models on the acquisition and modification of sex-typed behavior. Another objective was to evaluate the intervention method (viewing models only versus viewing models plus discussion) effecting behavior change. The specific hypotheses tested were:

Hypothesis 1. Providing symbolic models showing men and women in nontraditional occupational roles through video means will decrease sex-typing children apply to occupations.

Hypothesis 2. This decrease in occupational sex-typing will be enhanced by social reinforcement administered through the discussion of the advanges of eliminating occupational segregation.

Hypothesis 3. Nontraditional choices for the modeled occupations will generalize to nontraditional choices for nonmodeled occupations.

Subjects

The sample was taken from School District No. 1 in Pasco, Washington. The city of Pasco, located in the southeastern section of the state, is part of the metropolitan area known as "Tri-Cities" which also contains the cities of Richland and Kennewick. The area's industry is comprised mainly of two growing fields--atomic energy and agri-business. Of the three cities, Pasco evidences more economic deprivation than its adjacent neighbors; it offers the characteristics of a high minority population and a fairly nationally representative socio-economic cross-section (Washington State University-Pasco Teacher Corps Project, proposal submitted to the Office of Education, Department of Health, Education, and Welfare, 1977-1978, pp. 5-10).

Eight teachers in two Pasco elementary schools, Captain Grey and Emerson, were approached about voluntary participation of their classrooms in a project on the effect of television on children's career development. The teachers' agreements to participate were obtained. The teachers were chosen because of their involvement with the Teacher Corps project and their assignment to second and third grade classrooms.

Second and third graders were chosen because they exhibit less conceptual rigidity of Piaget's preoperational stage as evident in the previously reviewed studies on kindergarten children (Barclay, 1974; O'Bryant & Corder-Bolz, 1978; Shepard & Hess, 1975; Swick & Carlton, 1974; Weeks et al., 1977). Also, these age groups were adequately developmentally mature to have a conceptual basis of occupational knowledge (DeFleur, 1966; Nelson, 1963; Wehrly, 1973). It was predicted that they would have the ability to respond to the dependent measure, the Select-A-Worker instrument.

Initially, four second and four third grade classes were included in the sample for a total of 172 students. One second grade was excluded due to scheduling conflicts, resulting in a final N of 151, the total of all children present for all three testing phases.[4] Treatment group one consisted of Grade 2 (N=25) and Grade 3 (N=20), treatment group two of Grade 3 only (N=22), treatment group three of Grade 2 (N=24) and Grade 3 (N=21), and treatment group four of Grade 2 (N=20) and Grade 3 (N=19).

The demographic data was recorded by the teachers on a cover page for each child's testing forms. In addition, each teacher was given a range of three digit identification numbers to substitute for the name of each individual respondent in order to ensure anonymity for the child. (See Appendix A for the data recording sheet.)

Table 1 gives a demographic breakdown of the treatment groups by sex, ethnicity, bilingualism, and number of parents in the family. Chi-square test results on group characteristics do not report any significant differences in the groups on these variables. Note that all groups reflect the large Chicano population due to the traditional seasonal arrival of many migrant families to the area during the spring of each year.

Independent Variable--Developing the Videotape

A thorough search was made for an appropriate film or videotape that could be used as a stimulus for comparing traditional and nontraditional sex

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[4]In the school setting it was not feasible to randomly assign each child to a treatment condition. School officials reported no systematic assignment of the students to classrooms which may have biased the results. Thus, each class as a whole was randomly assigned to a treatment condition. This is referred to as a "quasi-experimental design," a valid design sometimes necessitated by limitations of the natural setting (see Campbell & Stanley, 1967, pp. 34-37.)

TABLE 1

DEMOGRAPHIC VARIABLES BY TREATMENT GROUP AND BY GRADE

Variables	Grade 2[a] Treatment[b]			Grade 3 Treatment[b]				
	1	3	4	1	2	3	4	Total
Sex								
Boys	48[c](12)	50(12)	45(9)	50(10)	41(9)	52(11)	47(9)	48(72)
Girls	52(13)	50(12)	55(11)	50(10)	59(13)	48(10)	53(10)	52(79)
Ethnicity[c]								
Black	8(2)	17(4)	5(1)	10(22)	9(2)	14(3)	21(4)	12(18)
Chicano	36(9)	33(8)	5(1)	25(5)	23(5)	6(2)	16(3)	22(33)
White	56(14)	46(11)	80(16)	65(13)	68(15)	71(15)	63(12)	65(96)
Bilingual[d]								
Yes	28(7)	33(8)	10(2)	20(4)	23(5)	10(2)	16(3)	21(31)
No	72(18)	67(16)	85(17)	80(16)	77(17)	91(19)	84(16)	79(119)
Family[e]								
Two parent	84(21)	79(19)	90(18)	80(16)	82(18)	91(19)	79(15)	85(126)
Mother only	16(4)	17(4)	10(2)	20(4)	14(3)	10(2)	21(4)	15(23)
Total	36(25)	35(24)	29(20)	24(20)	27(22)	26(21)	23(19)	100(151)

NOTE: Values are in percentages. Numbers in parentheses are frequencies.

[a]Grade 2, Treatment 2 excluded due to scheduling conflicts.

[b]Conditions of the treatment were: (1) Viewed traditional career models; (2) Viewed nontraditional career models; (3) Viewed nontraditional career models plus discussion session; (4) control group.

[c]Four responses were Asian or mixed ethnicity.

[d]One response unknown.

[e]One "father only" response, one unknown response.

role models in a career setting. No pair of stimuli was found that was equivalent enough to control for variables other than gender. As a result, it was decided that it would be necessary to produce a videotape specifically suited for research requirements and yet also could be used for the career information contained in it. Two graduate students in the Drama Department of Washington State University, having histories of a variety of acting experiences, agreed to do the role playing in each occupational setting.

An exposure of two minutes per occupation allowed sufficient time to effectively portray a worker and describe, through narration, the necessary occupational information; it was expected that this amount of time would not exceed a child's attention span. A total of seven occupations were included to complete a tape approximately fifteen minutes long (with an introduction and credits). Two videotapes were produced; one with traditional career models (for example, male firefighter and female nurse), and the other of nontraditional career models (reversing the stereotype of each occupation--female firefighter and male nurse). Both actors participated in the taping of each work setting simultaneously, duplicating the portrayal of the job duties as far as possible. Because each tape is as identical to the other as could be achieved with all variables being held constant except gender, it can be supported that changes in children's responses after exposure to the workers were due to the effect of the intended stimulus--gender of the model.

A number of criteria were relevant to the choice of occupations to be included in the videotape. The work had to be able to be visually presented, be comprehended by second and third graders, and have a likelihood of an accessible location in the community to be taped. In addition, previous research was drawn upon to estimate the degree of stereotyping

attached to the occupation (Haug, 1975; Scheresky, 1976; Shepard & Hess, 1975). Based on these factors, four highly stereotyped occupations were chosen (minister, firefighter, nurse, and homemaker), two moderately stereotyped occupations (news reporter and telephone operator), and one fairly nonstereotypical (musician).

Community members were asked to permit a videotaping in their workplace, and they also assisted by offering their expertise to ensure an accurate portrayal of their typical work duties. (For acknowledgement of community work locations that permitted the videotaping, see Appendix B.) Before arriving at the taping location, the narration (consisting of a description of the job duties, requirements to enter the occupation, and conditions of work), was written and used as a guide for taping activities. This was done to ensure inclusion of the major elements of the job so it would accurately reflect the general area of work, not just what is specific to the particular location. The above information for each occupation was synthesized from the U.S. Department of Labor, Employment and Training Administration, Dictionary of Occupational Titles, 1977 and the U.S. Department of Labor Statistics Bureau, Occupational Outlook Handbook, 1976-1977.

Dependent Variable--Select-A-Worker Instrument

The dependent measure of attitude change is a written response on the Select-A-Worker instrument, which is a modification of measures used by previous research (Barclay, 1974; Iglitzen, 1972; Scheresky, 1976; Shepard & Hess, 1975; and Schlossberg & Goodman, 1972). The list of occupational titles is captioned by the question "Who could do this job--a man, a woman, or both?" (See Appendix A for instrument samples.) It was decided to focus only on job titles and not to include sex role activity items,

because some research indicates (Beuf, 1974) there may be a difference in children's responses to sex role activity and occupational roles.

A list of twenty occupations was developed which included the titles of the seven videotaped occupations for the purpose of testing generalization effect from modeled occupations to nonmodeled. Ten traditionally male occupations and ten traditionally female occupations were included. The direction of traditionality was arrived at by prejudging by college students in an undergraduate sociology class. The occupations most consistently judged in the traditional stereotypical direction were chosen for the testing instrument. (As a double check, the videotaped occupations also were judged and the previously mentioned conclusions on the degree of stereotyping were upheld.) The same dependent measure was administered for the pretest (baseline) and the two posttests.

Added to this measure of occupational sex-typing were questions on personal occupational preference--"Choose two of these jobs you would least like to do." A time of fifteen minutes was estimated for the completion of the testing instrument.

Scoring

The test item was scored with a "1" if a child indicated a traditional choice to fill the occupational role. An example of this is: "Who could do this job?" (truck driver), and the child responded "man." The test item was scored with a "2" if the child indicated a nontraditional choice to fill the role, for example, if the answer to the above choice was "woman." A "3" was given for a "both" response to an item. Thus, the higher the child's total score on the test, the more "flexible attitude" toward occupational roles he or she showed. The higher the group mean, the more flexibility is

reflected from the group described. Significant change from the pretest to posttest one or posttest two in a treatment condition was evidence for a modeling effect.

Treatment

The treatment groups were designed to allow for comparison of traditional career modeling, nontraditional career modeling, and nontraditional career modeling with discussion session (reinforcement). Each group consisted of one second and one third grade classroom, except for treatment two, which contained one third grade only. (Refer to Table 1 for a breakdown by group characteristics). The treatment condition had to be administered to each classroom separately because of space and time limitations of the school setting, but efforts were made to be as uniform as possible in administering the treatment for each group.

Treatment Group 1

Grades two and three, viewed the videotape with traditional sex role career models (fifteen minutes).

Treatment Group 2

Grade three only, viewed the videotape with nontraditional sex role career models (fifteen minutes).

Treatment Group 3

Grades two and three, viewed the videotape with nontraditional sex role career models (fifteen minutes) plus, immediately following the viewing, had a discussion session led by the teacher on the advantages of eliminating occupational stereotyping. This was designed to provide the maximum verbal and social reinforcement for positive statements on removing stereotypes (ten minutes).

Treatment Group 4

Grades two and three, acted as control group. The students were not exposed to either videotape nor any other career education materials as far as possible.

Procedures

A pilot run of elements of the research was undertaken at Jefferson Elementary School in Pullman, Washington, in April, 1978, with a third grade class. The third treatment condition was chosen for evaluation and the Select-A-Worker instrument also was administered. From this, it was discovered that some children were unsure what the occupational title "Beautician" meant. Therefore, it was substituted by another traditionally female occupation, that of "Teacher." Observation by the researcher and feedback from their classroom teacher, Ms. Beverly Young, indicated that other aspects of the pilot run went smoothly. Her discussion session with the children was videotaped in order to use it as a training stimulus with the Pasco teachers in Pasco. A lack of time away from the classroom for the teachers in Pasco prevented its use.

A short training session was held for the participating teachers in the Pasco school for the purpose of informing them of the general purpose of the research and to familiarize them with the materials. A secondary goal of this procedure was to maximize the involvement of the teachers in the research process. This session was brief due to the time constraints of the heavily scheduled school day. Special individual sessions were scheduled with the two teachers who had been randomly assigned to the treatment conditions with the group discussion component.

The pretest (Select-A-Worker instrument, Score 1) was administered to all the groups by the teachers in their individual classrooms on the following

day. (See Appendix A for the testing instrument instructions.) Two weeks later, viewing the videotape was scheduled in each classroom under the appropriate treatment conditions assigned previously. The Select-A-Worker instrument was administered to the children immediately following their particular treatment for the first posttest (Select-A-Worker, Score 2). Also, the control group took the same instrument for a second time without any intervention. The second posttest, given two weeks later to measure stability of changes over time (Select-A-Worker instrument, Score 3), was administered again by the classroom teachers. The completed set of tests (pretest, posttest 1 and posttest 2) was compiled for each student present for all three phases of testing. Only data from students present for all phases were included in the data analysis.

CHAPTER 4

RESULTS

In this section, the data analysis is discussed with the intention of confirming or nonconfirming the hypotheses offered. First of all, did non-traditional career models reduce sex-typing of occupations as predicted? Second, if a reduction in sex-typing occurred, did it decrease more as a result of the discussion of the advantages of eliminating stereotyping? Also, did a change in attitudes occur towards occupations not portrayed by career models occur as expected? In addition to the data on sex-typing applied to these questions, the influence of the videotaped career models on children's personal occuaptional preference is considered.

The interpretation of the data is subject to qualification. While the use of the same dependent measure as Pretest, Posttest 1, and Posttest 2 allows for specific comparisons over time, it also increases the chance of a practice effect. This can result in increased nonresponse to items because the student becomes bored with the activity, or a tendency for the student to answer repetitively. Also, one possible effect is that the student becomes familiar with the intent of the research and responds as he or she interprets the expectations; this can lead to a measurement of how well the student understands the concept being studied (in this case, sex-typing), not to a measurement of attitude change. However, because the students in this study were quite young and because there are consistent trends over treatment groups through the testing phases, there is support for a treatment effect on attitude change.

Sex-typing

The data on sex-typing from the Select-A-Worker instrument was treated as interval data. Each item (occupational title) from the list of twenty occupations was scored with a one for a stereotypic response, a two for a reverse-stereotypic response, and three for a gender inclusive ("both") response. The possible range of scores was from 0 (all nonresponse) to 60 (all "both" responses), the latter indicating the most flexible attitude toward occupations (or the least sex-typed). This allows calculation of a group mean for each group which was used as a dependent measure for the Pretest, Posttest 1, and Posttest 2.

Hypothesis 1. Providing symbolic models showing men and women in nontraditional occupational roles through video means will decrease sex-typing children apply to occupations.

Due to the possibility of an interaction effect between experimental intervention (Treatments 1, 2, or 3) and sex, analysis of variance (ANOVA) was used to test significant relationships between the variables and the dependent measure. The ANOVA on Grade 3 scores included Groups 1, 2, 3, and 4, and was applied separately for the Pretest, Posttest 1, and Posttest 2 (See Table 2). For the Pretest analysis, no significant effect is shown from either the treatment, sex, or an interaction between the two variables. This indicates that there was no initial difference among the third grade groups in terms of how they responded to the Select-A-Worker instrument.

A significant treatment effect does show up when the ANOVA is applied to Posttest 1 from treatment ($F = 9.479$, $p < .01$), but not from sex or was an interaction evident between sex and treatment. The influence of the intervention remained into Posttest 2 ($F = 5.337$, $p < .05$), but again, no significant sex or interaction effect are apparent. Examination of Table 3 reveals higher mean scores for Groups 2 (nontraditional career models) and

TABLE 2

RESULTS OF TWO WAY ANALYSIS OF VARIANCE: SELECT-A-WORKER SCORE BY TREATMENT AND SEX FOR GRADE 2 AND GRADE 3

Treatment	Sum of Squares	DF	Mean Square	F	p
Grade 2 (N=64), Treatments 3, 4					
Pretest					
Treatment	18.999	1	18.999	.851	
Sex	17.392	1	17.392	.779	
Treatment by Sex	13.001	1	13.001	.583	
Posttest 1					
Treatment	1310.497	1	1310.497	28.247	.0001
Sex	69.138	1	69.138	1.490	
Treatment by Sex	12.303	1	12.303	.265	
Posttest 2					
Treatment	549.136	1	549.136	7.719	.008
Sex	.090	1	.090	.001	
Treatment by Sex	31.920	1	31.920	.449	
Grade 3 (N=82) Treatment 1, 2, 3, 4					
Pretest					
Treatment	97.839	3	32.613	.675	
Sex	56.672	1	56.672	1.173	
Treatment by Sex	56.826	3	18.942	.392	
Posttest 1					
Treatment	1622.677	3	540.892	9.479	.0001
Sex	13.680	1	13.680	.240	
Treatment by Sex	215.906	3	71.969	1.261	
Posttest 2					
Treatment	1360.652	3	453.551	5.337	.002
Sex	60.442	1	60.442	.711	
Treatment by Sex	149.788	3	49.929	.588	

3 (nontraditional career models plus discussion) than for Groups 1 (traditional career models) or 4 (control group) for both Posttest 1 and Posttest 2. Therefore, it can be concluded that the data for Grade 3 supports Hypothesis 1--nontraditional occupational modeling did decrease sex-typing which children apply to occupations.

The first ANOVA on Grade 2 included Treatment Groups 1, 3, and 4 (Group 2 was eliminated due to scheduling conflicts). This ANOVA resulted in a significant treatment effect on the pretest. It was felt that this was due to the comparatively low baseline of Treatment Group 1 (traditional career models) as compared to all other groups (See Table 3). A second ANOVA (See Table 2) was applied, excluding Group 1 and comparing only Group 3 (nontraditional career modeling plus discussion) with Group 4 (control group). The significant effect from the first ANOVA on Pretest reversed to no significant effect in the Pretest from treatment intervention. After treatment intervention (Posttest 1) ANOVA resulted in a significant treatment effect ($F = 28.247$, $p < .01$). The Posttest 2 results ($F = 7.719$, $p < .05$) showed the effect was maintained over the two week period. Also, any significant effect from sex or an interaction between the variables of sex and treatment was eliminated. Differences in mean scores (Table 3) indicated that the nontraditional career models followed by a discussion session did reduce sex-typing in Grade 2 as it did in Grade 3. Thus, Hypothesis 1 was confirmed for both Grades 2 and 3.

Due to the large representation of ethnic minority student, especially Chicano students, ethnicity was examined in the testing phases for all students. No significant F scores were found in the Pretest ($F = .893$, $p > .05$), Posttest 1 ($F = 1.200$, $p > .05$), or in Posttest 2 ($F = 1.223$, $p > .05$). A comparison of mean scores of students by ethnicity are presented in Table 4.

TABLE 3

PRETEST, POSTTEST 1, AND POSTTEST 2 MEAN SCORES ON SELECT-A-WORKER INSTRUMENT BY SEX, TREATMENT GROUP, AND GRADE

Group	N	Pretest		Posttest 1		Posttest 2	
		Grade 2					
		M	SD	M	SD	M	SD
Treatment 1	25	32.4	6.34	33.5	5.91	32.4	5.84
Male	12	32.8	7.15	31.8	5.06	33.7	5.47
Female	13	32.0	5.77	35.1	6.39	31.2	6.12
Treatment 3	24	39.0	4.58	48.0	5.94	45.6	8.03
Male	12	37.8	4.41	47.2	6.64	44.8	8.23
Female	12	40.1	4.66	48.8	5.33	46.4	8.11
Treatment 4	20	37.7	4.81	37.1	7.70	38.5	8.56
Male	9	37.7	6.02	35.1	9.64	39.5	10.89
Female	11	37.7	3.88	38.8	5.62	37.7	6.54
		Grade 3					
Treatment 1	20	39.5	7.75	40.7	6.51	40.1	8.14
Male	10	39.1	6.19	42.0	1.52	39.6	4.96
Female	10	39.9	9.39	39.5	9.15	40.5	10.72
Treatment 2	22	37.4	6.98	50.0	8.03	50.0	9.73
Male	9	34.8	3.80	47.4	7.42	48.4	[illegible]
Female	13	39.2	8.18	51.8	8.21	51.1	9.12
Treatment 3	21	36.6	5.66	44.1	7.54	45.5	10.30
Male	11	36.2	6.79	42.4	9.45	43.0	11.21
Female	10	37.1	4.41	45.8	4.49	48.2	9.00
Treatment 4	19	37.2	7.01	38.1	8.01	40.3	7.92
Male	9	37.0	7.26	39.5	8.44	41.5	7.61
Female	10	37.3	7.17	36.9	7.85	39.2	8.44

As is evident in Table 4, the nontraditional treatment intervention was effective in increasing the occupational sex role flexibility of minority students as well as white students even though the models in the videotape were white.

> Hypothesis 2. This decrease in occupational sex-typing will be enhanced by social reinforcement administered through the discussion of the advantages of eliminating occupational segregation.

Due to the loss of Treatment Group 2 in Grade 2, the only direct test of this hypothesis was available from Grade 3. Comparing Grade 3 Treatment Group 2 (nontraditional career models) with Grade 3 Treatment Group 3 (nontraditional career models, plus discussion) through a one-way ANOVA, showed no significant difference between the groups in the Pretest. In Posttest 1 a significant difference between the effects of the treatment condition was evident ($F = 6.264$, $p < .05$). This difference disappeared by Posttest 2. As evident in Table 3, the significant difference was opposite of the predicted direction. While both groups increased their flexibility toward occupations, Group 2 changed more than any other group in the sample, even without an exceptionally low baseline. The relatively high standard deviations, especially in Posttest 2, indicate that the mean represents a wide range of scores; this is evidence of diversified responses by the students.

The consideration of a significant difference between the effectiveness of the discussion sessions in Grade 2 and Grade 3 was examined. F tests run on this relationship between the two groups of Treatment 3 did not statistically support a significant difference (although Posttest 1 approaches a significant difference level--$F = 3.822$, $p = .0571$ and Table 3 shows a slightly higher mean for Grade 2).

TABLE 4

PRETEST, POSTTEST 1, AND POSTTEST 2 MEAN SCORE ON SELECT-A-WORKER INSTRUMENT BY ETHNICITY AND TREATMENT GROUP

Group[a]	N	Pretest		Posttest 1		Posttest 2	
		M	SD	M	SD	M	SD
Treatment 1	45	35.5	7.79	36.7	7.11	35.8	7.87
Black	4	37.3	.50	34.7	6.18	29.8	3.77
Chicano	14	35.2	3.62	36.6	5.38	33.4	3.96
White	27	35.4	9.78	37.0	8.11	37.9	9.06
Treatment 2	22	37.4	6.98	50.0	8.03	50.0	9.73
Black	2	36.5	.71	49.0	4.24	52.0	11.31
Chicano	5	36.6	1.67	45.3	3.98	46.1	5.90
White	15	37.8	8.47	51.7	8.93	51.0	10.77
Treatment 3[b]	45	37.9	5.19	46.1	6.94	45.5	9.06
Black	7	36.7	2.50	45.0	5.14	44.2	10.51
Chicano	10	36.4	2.60	45.0	4.55	43.2	8.03
White	26	36.0	6.37	47.1	8.26	46.8	9.49
Treatment 4[b]	39	37.4	5.91	37.6	7.76	39.4	8.20
Black	5	36.8	6.72	39.7	5.34	39.7	8.34
Chicano	4	36.5	6.86	32.3	3.86	40.9	1.28
White	28	38.1	5.62	38.6	7.98	39.5	8.89

[a]Each treatment group includes Grades 2 and 3 except Treatment 2 which contains Grade 3 only.

[b]Two responses in Treatment 3 and two responses in Treatment 4 were coded as Asian or mixed ethnicity.

A significant change in Select-A-Worker scores on sex-typing for Treatment Groups 3 in the second and third grade and for Treatment Group 2 in the third grade was found. However, Hypothesis 2 predicted a stronger effect for the groups receiving positive reinforcement through a discussion session. This prediction was not supported by the data.

Hypothesis 3. Nontraditional choices for the modeled occupations will generalize to nontraditional choices for nonmodeled occupations.

This hypothesis predicted that there would be a transfer of flexibility of attitude (generalization) to nonmodeled occupations. Information about the effect of the nontraditional modeling on responses to specific occupations is available in Table 5. By examining significant changes from Pretest to Posttest 1 and Pretest to Posttest 2 through a *t* test, there appeared to be some generalization to nonmodeled occupations in Groups 2 and 3. However, because Treatment Groups 1 (traditional) and 4 (control group) also had a small change in specific occupations, the findings might imply that this was due to introducing the concept of occupational sex-typing to the students. This might be reflected in the tendency of the students in Groups 1 and 4 to exhibit change toward occupations in their everyday environment (Truck Driver, News Reporter, Secretary, Homemaker, Teacher).

The results of the *t* test most strongly supported the idea that the occupations responsible for a significant treatment effect primarily were modeled occupations. Not only were the greatest changes clustered in Treatment Groups 2 and 3, but the occupations showing the greatest degree of change and those that maintain across testing phases are modeled occupations. Those occupations which showed decreased sex-typing at a significance level of .001 or less were: (1) Treatment 2, Pretest to Posttest 1--Minister, Firefighter, Nurse, Telephone Operator, Homemaker, and Musician, and for

TABLE 5

SIGNIFICANCE OF CHANGE IN RESPONSE TO EACH OCCUPATION ON SELECT-A-WORKER INSTRUMENT: PRETEST TO POSTTEST 1 AND PRETEST TO POSTTEST 2

Occupation	Treatment 1		Treatment 2	
	Pre to P-1	Pre to P-2	Pre to P-1	Pre to P-2
Dentist	0.46	1.53	-2.81*	-1.70
Gas Station Attendant	0.66	-0.96	-2.06	-2.03
Telephone Operator[a]	-0.27	-0.14	-6.87***	-5.56***
Dressmaker	-1.03	0.18	-1.07	-0.62
Minister[a]	-1.10	-0.16	-9.06***	-6.54***
Librarian	-0.57	-0.39	-2.32*	-3.25**
Laundry Worker	0.00	-0.57	-0.64	-3.04**
Musician[a]	-0.80	-0.39	-4.17***	-1.63
Truck Driver	2.14*	1.31	-3.44**	-4.26***
Teacher	-1.48	-1.27	0.00	-1.00
Nurse[a]	1.94	1.15	-7.55***	-5.70***
Farmer	0.70	1.27	-2.02	-3.20**
News Reporter[a]	-1.37	-2.26*	-1.45	0.00
Plumber	1.18	0.20	-3.87**	-2.63*
Secretary	-1.00	-3.17**	-2.32*	-3.58**
Homemaker[a]	1.39	-0.48	-6.38***	-2.96**
Business Owner	-1.67	-0.83	-0.55	-1.30
Ballet Dancer	0.53	-0.82	-2.02	-2.63*
Firefighter[a]	0.00	0.83	-8.45***	-5.92***
Grocery Checker	-1.81	-0.85	0.00	0.00

TABLE 5--(Continued)

Treatment 3		Treatment 4	
Pre to P-1	Pre to P-2	Pre to P-1	Pre to P-2
-0.70	-0.90	1.68	0.57
-1.64	-4.07***	-1.00	-1.00
-6.56***	-5.54***	-0.52	-0.81
-3.51**	-3.20**	-0.24	0.55
-7.38***	-6.19***	1.28	-1.82
-0.26	-0.70	0.59	0.81
-3.14**	-3.56**	0.42	0.81
-3.50**	-2.66*	0.85	2.12*
-1.38	-2.71*	-0.21	-0.42
0.44	1.35	0.57	2.30*
-8.79***	-5.57***	0.59	-1.00
-0.66	-1.32	-0.80	-0.16
-0.65	0.57	2.36*	1.86
0.78	-0.41	-1.36	-1.71
-1.45	-1.70	-0.81	-2.58*
-10.33***	-5.11***	2.73*	0.28
1.48	-0.15	1.00	-0.28
-0.15	-0.86	1.00	0.16
-9.12***	-4.44***	-0.20	-1.00
-2.04*	-2.22*	0.42	0.22

NOTE: Two-tailed t test.

[a]Modeled occupation in career education videotape.

*p < .05

**p < .01

***p < .001

Pretest to Posttest 2--Minister, Firefighter, Nurse, Telephone Operator, and Truck Driver; (2) Treatment 3, Pretest to Posttest 1--Homemaker, Firefighter, Nurse, Minister, Telephone Operator, Musician, and Dressmaker, and for Pretest to Posttest 2--Minister, Nurse, Telephone Operator, Homemaker, Firefighter, Gas Station Attendant and Laundry Worker. (Of the above, the following were modeled: Minister, Firefighter, Nurse, Telephone Operator, Homemaker and Musician.) For both the modeled and nonmodeled occupations that showed significant change, there was a trend of the more the occupation was stereotyped, the greater the change. Those occupations not so clearly segregated, e.g., News Reporter or Teacher) had mixed results. Evidence of a generalization effect is unclear. Because Groups 1 (traditional) and 4 (control) had isolated examples of occupational change, generalization from treatment intervention (Hypothesis 3) could not be empirically supported.

In sum, the data on sex-typing is consistent with the research reported in Chapter 2 i.e., numerous studies indicated that children do sex-type occupations. Mean scores from the Pretest (Table 3) showed concordance among the students for a basis for sex-typing that parallels traditional adult norms for occupational segregation. Posttest 1 and 2 supported the experimental treatment effect of nontraditional modeling on increased flexibility toward occupations in this study as it did in the studies by Barclay (1974) and by O'Bryant and Corder-Bolz (1978). This study varied from their findings in that no significant interaction effect by sex was apparent, although in most of this study's treatment groups, the girls' mean scores were slightly higher than the boys' mean scores. As Grades 2 and 3 were close in chronological age, no analysis of the age factor was done. In treatment groups where a change was expected (Groups 2 or 3), no signs of conceptual rigidity evident with kindergarten-age children were shown.

(See Chapter 2 for further clarification). In terms of ethnicity, no significantly different pattern in responses was found when ethnicity was considered

Occupational Preference and Aversion

The students were asked to choose two of the listed occupations they "most liked" and "least liked" (See Appendix A for instrument sample). Their choices (nominal data) were analyzed by frequency of choice of male occupations and female occupations. Examination of the individual responses on the original instruments showed many inconsistencies (e.g., repetition of some occupations for like and dislike, reversals of choice for testing phases, etc.), indicating that the concept of like and dislike as it was used and recorded in the test, was often misunderstood. However, the general trends of the responses are useful.

The first purpose of acquiring this information was to determine the existance of any difference between objective application of sex-typing to occupations and expressed personal choice. The first half of Table 6 shows segregated responses for "most like" responses in most cells. By comparing the Pretest to the two Posttests in Groups 2 and 3 in Table 6, it is evident that nontraditional modeling did not have an overt effect on facilitating personal nontraditional occupational choice. Group 2 did show some change for girls from 2 in the Pretest to 5 in Posttest 2 for male occupations, but this is too few to support a treatment effect. Appendix C (Table 7) identifies response pattern by occupation chosen as first preference. As consistent with previous research on occupational choice, there was no overlap between the boys' and girls' choices. A clustering of choices around popular occupations is evident. Thus, results were highly influenced by these specific occupations. The totals for the most popular choices by the boys

TABLE 6

FREQUENCY OF MOST LIKE AND MOST DISLIKE MALE AND FEMALE CHOICES ON SELECT-A-WORKER INSTRUMENT BY SEX AND TREATMENT GROUP: PRETEST, POSTTEST 1, AND POSTTEST 2

Treatment	Pretest Choice		Posttest 1 Choice		Posttest 2 Choice		Total
	Male	Female	Male	Female	Male	Female	
Most Like							
Treatment 1							
Male	20	1	19	3	19	3	65
Female	1	20	0	16	1	21	59
Treatment 2							
Male	8	1	7	2	9	0	27
Female	2	11	4	9	5	8	39
Treatment 3							
Male	19	4	18	4	19	1	65
Female	1	19	1	19	3	18	61
Treatment 4							
Male	14	2	13	1	14	0	44
Female	4	14	4	15	2	18	57
	72	69	64	71	72	69	
Most Dislike							
Treatment 1							
Male	9	12	8	13	6	15	63
Female	19	1	19	4	18	4	65
Treatment 2							
Male	3	6	5	4	2	7	27
Female	9	4	8	5	8	5	39
Treatment 3							
Male	6	16	9	13	2	19	65
Female	17	4	17	5	14	8	65
Treatment 4							
Male	7	11	5	13	3	13	52
Female	13	7	8	12	14	6	60
	83	61	79	69	67	77	

[a]Includes only first choice of the respondents.

[b]Totals vary because many responses were not codable or were omitted by respondents.

[c]Conditions of the treatment were: (1) Viewed traditional career models; (2) Viewed nontraditional career models; (3) Viewed nontraditional career models plus discussion session; (4) Control group.

across testing phases are: Truck Driver (82), Firefighter (30), Dentist (22), Farmer (16), and Gas Station Attendant (11). The girls chose these occupations most frequently: Teacher (65). Ballet Dancer (45), Nurse (27), Secretary (15), and Grocery Checker (11).

For "dislike" choices, or occupations that are most aversive to the respondents, the second half of Table 6 provides support that opposite sex-appropriate occupations did elicit an aversive response. When ranking the frequency of these choices (from Appendix C, Table 8), the segregation is evident, but, contrary to the "like" choices, there was overlap by girls' and boys' responses in some occupations--Ballet Dancer, Plumber, and Firefighter. The boys' "dislike" choices across all testing phases were: Ballet (72), Nurse (20), Homemaker (16), Farmer (14), Plumber (12), Dentist (10), and Firefighter (10). For girls, the following occupations elicited aversion: Truck Driver (39), Plumber (38), Firefighter (33), Ballet Dancer (27), Farmer (14), Gas Station Attendant (12), and News Reporter (10).

In addition to comparing sex-typing of occupations with sex-typing of personal choice of occupation, the data from this part of the Select-A-Worker instrument were also used to see if modeling specific occupations would increase their attractiveness to the students. Table 7 in Appendix C was used to examine any increase in modeled occupations in Treatment Groups 2 and 3 (nontraditional treatment). No increase or decrease in any occupation is evident. Table 8 (Appendix C), identifying "dislike" choices, shows the same lack of significant change. The data in this section indicated that nontraditional modeling does not seem to effect personal choice of occupations either by making an occupation more attractive or by facilitating an opposite sex choice. This is contrary to the findings of O'Bryant

and Corder-Bolz (1978), which found a significant increase in girls' preferences for women's jobs after exposure to women in nontraditional occupational roles, while boys' preferences increased for male jobs and decreased for female jobs after the same exposure.

CHAPTER 5

DISCUSSION

There is a growing awareness that television may be influencing children in many areas which have been previously unrecognized. Some research has shown that nontraditional career models can significantly change children's occupational perceptions. In order to add to the limited empirical work on the effect of television on children's career development, this research was initiated.

Summary

By using two specially produced career education videotapes (version 1 with traditional sex-role models and version 2 with nontraditional sex-role models), an empirical test was made on the effect of vicarious modeling on changing children's occupational sex-typing and occupational preferences. The primary concerns were if a significant effect was found on decreasing sex-typing (Hypothesis 1), would social approval encourage greater change (Hypothesis 2), and would this change in response extend to nonmodeled occupations (Hypothesis 3)?

The field experiment was conducted on 151 second and third grade children in Pasco, Washington. Four matched groups were randomly assigned to the following treatment conditions: Treatment 1--viewed traditional career education videotape; Treatment 2--viewed nontraditional career education videotape; Treatment 3--viewed nontraditional career education videotape and participated in discussion on the advantages of removing occupational stereotypes (reinforcement); Treatment 4--was the control group.

The results showed strong empirically significant support for Hypothesis 1--nontraditional sex role models did indeed reduce children's sex-typing of occupations. No support was found for the greater effectiveness of reinforcement (Hypothesis 2). For Hypothesis 3, the results on generalization were inconclusive, but tended to disconfirm a transfer effect to other occupations. The attitude change evident from the data on sex-typing did not affect an overt change in occupational preference nor aversion, as these remained sex-typed over testing phases. Neither traditional nor nontraditional modeling affected frequency of choice.

Conclusions

A major conclusion from the analysis of the data is the empirical evidence for the effect of even temporary vicarious nontraditional sex-role modeling. Because children have little direct work experience, yet consistently segregate occupations by gender, it can be assumed that much of this impression formation is vicariously acquired. These observations of the work world (social constructs), however, are able to be modified by alternate vicarious experiences, as suggested by Bandura. The power of the model with the children in this study seemed to be with the individual occupational model and not with the conceptual generalization.

A second conclusion that follows is the role of televised modeling. Considering the evidence from the area of television and socialization, along with the strong modeling results of this study, there is evidence that the television media has the capability of playing a central role in providing exposure to positive social experiences, especially with regard to the susceptibility of young children who accept its portrayals as "reality." The distinctive lack of numbers and diversity of sex-role and cultural models may, in fact, narrow the social perspective of these children.

Third, it can be concluded that there is a dearth of knowledge on children's occupational concept development and its relationship to occupational decision-making. Better measuring instruments and, perhaps, more interview-approaches, which allow insight into individual reasoning, are needed to evaluate how overt responses are covertly used in individual decision-making. Cognitive mediations of social experiences are becoming an increasingly important part of social learning, yet these are extremely difficult to subject to research criteria, especially with children. Cognitive-developmental changes are interactive influences with socialization experiences (See Brophy, 1977 for a comparison of preoperational and the concrete cognitive levels in children).

Implications

Part of the justification of this study was to evaluate the role of research in the field setting. The cooperation and interest of the school personnel was very supportive throughout the study. The influence of television seemed to be a relevant issue for many of the individual teachers, and this motivated participation. Their expertise was apparent in numerous ways. When second graders had difficulty in keeping their place on the test instrument, the teachers devised page guides to assist the children and ensure accurate responses. Some individual students required more personal attention and care was taken by the teachers to support them throughout their participation.

The constraints on full participation by teachers in the project were primarily imposed by the setting. The school day was heavily scheduled, therefore, release time for the group discussion and orientation was extremely limited. This reduced the training time provided for the two teachers involved in conducting the discussion session. While observing the discussion

sessions, it was evident that pretraining for organizing and leading a discussion on sex roles was essential. For example, one teacher, unfamiliar with the topic, at times had the children classifying occupations by requirements for heavy lifting as men's jobs or women's jobs. It would have been useful to obtain permission to tape record the discussions for feedback purposes. This speaks to the strength of modeling intervention to decrease sex-typing because a significant reduction of sex-typing still occurred with this group of children. Without such time constraints, more individual contact with all the teachers would have allowed a better understanding of their approach to sex roles. This factor, nor the factors of sex or race of the teachers, were included in the design of this study. These all are relevant considerations of the classroom setting.

While scheduling the study at the end of the school year was beneficial in that it resulted in the inclusion of a large Chicano population, it also created problems. The time of the year meant added pressure for the school personnel due to the sudden increase in the student load. Also, adequate follow-up after the completion of the study was hampered by the ending of the school year.

One major implication of the study is the usefulness of vicarious modeling as an intervention technique. However, the modeling intervention was only moderately successful by itself. In this study, exposure to modeling did not encourage children to express nontraditional sex role choice. A corresponding experiential component might be necessary to encourage an overt "nontraditional" response. It would be important to increase the reward value of expressing nontraditional activities through self-reinforcement or social approval by peers. This might modify the consequences of performing nontraditional behavior which, as Mischel (1970) notes, is what maintains

sex-typed behaviors. Therefore, in terms of career development (in even broader terms than just sex role behavior), a variety of participatory experiences relating to the world of work appears desirable. Yawkey (1976) who promotes career education in the classroom, is an example of this. A possible additional benefit of using nontraditional career education material was observed while conducting the study. Through the novelty of seeing female firefighters and male nurses, nontraditional material seemed to increase attention span of the students.

However, television is only one means of socialization present in children's lives. Parents' child-rearing practices affect the use of the television media. Family-oriented "Television-Awareness-Training" type workshops are appearing in communities to assist parents in becoming more knowledgeable about the use of television in the home. There is a new popularity of books which encourages reconsideration of television in the home (Kaye, 1974; Mander, 1978; Rutstein, 1974; Winn, 1977). These stress such issues as strain on family communication, taking time away from other activities, and the effect of advertising on children's values. Also, the area of training in decision-making is an area where parents can promote career-relevant behavior in their children. (As a useful source for use with children, see Pollard's (1976) Decisions, Decisions, Decisions.)

In addition to informed use of the media, the whole area of media reform must be addressed. The content analysis studies which urge more cultural diversity are valid, but researchers have commented on the problems of applying social science research to the public domain. Specifically speaking on media policy, Rubenstein (1975) remarks:

> What we as scientists can do to make these decision-making individuals (policy makers) more successful and, of course, to provide them with scientific evidence. And we can continue to participate, as many of

> us still do, in the slow progress toward change. But scientific and public opinion must be translated into action by these decision-makers, both in government and in industry. (p. 198)

Although television is primarily an entertainment medium, its effects are felt in the social fiber of society. Industry must be responsible for its influence on social behavior and its accountability to the public should be recognized. How important is television in forming social expectations? Very! Is it affecting the behavior of the viewers? Yes! Can it be used for building positive social experiences? It could be.

Television, as it is now, presents a biased narrow picture of the work world. If children accept the portrayals as guidelines for themselves as future workers, unnecessary limitations result. One goal of career education is to prevent early foreclosure. According to Leifer and Lesser, 1976,

> We do not argue for the value of early career awareness because of its predictiveness to later success. Indeed, if successful, opening the options for young children leads logically to the low predictiveness of early choice, and from our position, this is desirable. (p. 31)

Through more varied representation of the community of workers, television can encourage children to consider all their options for maximum vocational development, for themselves, and for our future labor force.

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APPENDIX A

SELECT-A-WORKER INSTRUMENT

APPENDIX A

SELECT-A-WORKER ACTIVITY

TEACHER:

Please read the following instructions to the children.

"Please put your name at the bottom of the page where it says 'NAME.' (Wait until all the children have completed this.) We want to know what you think about these jobs. Your paper says, 'Who could do this job? Choose a man, a woman, or both. Circle your choice.' If you think a MAN could do the job, circle the word MAN. If you think a WOMAN could do the job, circle the word WOMAN. If you think BOTH could do the job, circle the word BOTH. Please make your answer your very own choice."

"I will now read the list of jobs out loud. Please wait until I finish reading the list before you start to circle your answers."

Read list out loud. (Ask the students if they need additional explanations. Please be careful not to use "Man" or "Woman" in responding to a question. For example, if asked what a grocery checker is, please answer, "A grocery checker is a person who runs the cash register at the grocery store," etc.)

"Remember there are no right or wrong answers. We want to know what you think about these jobs."

Continue to read these instructions aloud:

"After you have finished circling your answers, look at the bottom of the page. Here we would like you to choose two of these jobs which you would MOST LIKE TO DO. Then choose two of these jobs you would LEAST LIKE TO DO. Write in your choices.

"After completing the whole page, turn your paper over on your desk, and I will collect it."

"Thank you very much for sharing your ideas with us."

TEACHER: This page is to be attached to each child's completed questionnaire. Please complete the following information after the test is returned. After coding this paper and the questionnaire with the CHILD'S ASSIGNED NUMBER (the same number to be used for pretest, post-test 1 and post-test 2), the child's name will be removed from the questionnaire.

STUDENT'S ASSIGNED NUMBER_____

STUDENT'S GRADE LEVEL_____

STUDENT'S SEX: Male_____

Female_____

STUDENT'S ETHNIC GROUP: 1. Black_____

2. Chicano_____

3. Caucasian_____

4. Asian_____

5. Native American_____

6. Other_____

BILINGUAL: Yes_____

No_____

ONE PARENT FAMILY: Yes_____

No_____

If yes, check which parent is present:

Mother_____

Father_____

Student's Identification Number_____

WHO COULD DO THIS JOB? Choose a man, a woman, or both. Circle your choice.

JOB				
1.	Dentist	MAN	WOMAN	BOTH
2.	Gas Station Attendant	MAN	WOMAN	BOTH
3.	Telephone Operator	MAN	WOMAN	BOTH
4.	Dressmaker	MAN	WOMAN	BOTH
5.	Minister	MAN	WOMAN	BOTH
6.	Librarian	MAN	WOMAN	BOTH
7.	Laundry Worker	MAN	WOMAN	BOTH
8.	Musician	MAN	WOMAN	BOTH
9.	Truck Driver	MAN	WOMAN	BOTH
10.	Teacher	MAN	WOMAN	BOTH
11.	Nurse	MAN	WOMAN	BOTH
12.	Farmer	MAN	WOMAN	BOTH
13.	News Reporter	MAN	WOMAN	BOTH
14.	Plumber	MAN	WOMAN	BOTH
15.	Secretary	MAN	WOMAN	BOTH
16.	Homemaker	MAN	WOMAN	BOTH
17.	Business Owner	MAN	WOMAN	BOTH
18.	Ballet Dancer	MAN	WOMAN	BOTH
19.	Firefighter	MAN	WOMAN	BOTH
20.	Grocery Checker	MAN	WOMAN	BOTH

Choose two of these jobs you would MOST LIKE TO DO:

1. _____ 2. _____

Choose two of these jobs you would **LEAST LIKE TO DO:**

1. _____ 2. _____

NAME_____

APPENDIX B

CAREER EDUCATION VIDEOTAPE

APPENDIX B

RESEARCH VIDEOTAPE CONTENT

Title: Have you Considered . . . ?

Special thanks to Teacher Corps for providing production funds for this videotape and Dr. Stanley Zehm, Associate Professor of Education and Child Development.

Conceived and Written by: Lonnie Dunlap
Produced and Directed by: Don Peters
Camera Operators: Jose Gayton, Mike Peterson
Actors: Richard F. Taflinger, Verlaine Gable Taflinger, Susan Songer, Mike Peterson, Josie Ball
Pianist: Monica Peters
Narrators: Agnes Coates, Gary Whitney

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TITLE

Have you considered . . . ?

Version I--Traditional Sex Role Models

Version II--Nontraditional Sex Role Models

(Written for Grades 2-3)

INTRODUCTION

Each of us is unique; each of us is a special person for many reasons. When we are young we sometimes think of what it will be like when we are an adult. While we are growing up we try out many different things, often to feel what it is like to be an adult. Some of us like to captain a ship, paint a picture, prepare food, drive a car, or climb a mountain. Through play we can learn lots of things about ourselves, like how far we can climb or how high we can jump. We find out what we like to do alone or share with friends. Another way we can learn is by watching other people. Here are some people working on jobs that you might want to consider.

(Graphics: Written titles of seven occupations.)

ORDER OF APPEARANCE OF OCCUPATIONS

Traditional (Version 1)	Nontraditional (Version II)
1. Musician (Male)	1. Musician (Female)
2. Nurse (Female)	2. Nurse (Male)
3. Minister (Male)	3. Minister (Female)
4. Telephone Operator (Female)	4. Telephone Operator (Male)
5. Firefighter (Male)	5. Firefighter (Female)
6. Homemaker (Female)	6. Homemaker (Male)
7. News Reporter (Male)	7. News Reporter (Female)

NARRATION

Musician

I am a professional musician. I like playing for myself and for other people. It is also a job for me. People pay money to hear me play because I am very good at my job. I can perform on stage and other times I can play so people hear me on television, on the radio, or on records.

The time I spend playing for other people is short compared to the many hours I must practice. I have taken music lessons for many years, and much of it has been hard work. I would often have to give up doing other things because I needed to practice.

I can do a lot of things with my music. I sometimes even write my own songs, and, if they are good, other people want to play them too. Because I know about music I like to teach other people to play the piano. I can teach at a school or in my home.

People who make their living as muscians must travel a lot and spend much time practicing. Being a musician is hard work, but I enjoy music most of all. I like it when other people enjoy listening to me.

Nurse

I am a nurse. My job is to help sick people get well and to help healthy people stay well. I can work in a doctor's office, in a hospital or in a school. I sometimes even teach in a nursing school, showing others how to become nurses.

When I work in the doctor's office I do many things. I get information from you, finding out why you have come to see us. I try to make you feel more comfortable. I know how to use special equipment--like the EKG machine which helps the doctor and me get a picture of how your heart is pumping. I also do many things like take your blood pressure which helps us

see how healthy your body is. If the doctor decides you need medicine, I measure it and take it to to you. It is also part of my job to make sure we have the right medicine and supplies in our office. Keeping information on your health is important and I need to take care of the papers and charts that have this information.

Most of all I like to work with people and help them stay healthy. I am good at my job because I have studied many years in nursing school. I have taken a lot of different classes in areas like science, nutrition, and medicine.

Some nurses work at night or on week-ends. We are usually very busy while we are working but I enjoy it and it is important work to me.

Minister

I am a minister. I have chosen to be a minister because I believe serving God is an important part of living. I feel that by doing this job, I can help people live happier lives and have a better understanding of God. Although I am called a "minister", others who do this kind of work may be called a "priest" or "rabbi".

You may see me most often in church, especially while I am speaking to people who come for services. When I am not in church, much of my time is spent writing about and studying such things as religious history. Other times I frequently talk with people who come to me because they have problems. I also try to help people with projects in the neighborhood like organizing sports programs for young people. Much of my day is spent out in the community. For example, when people are very sick at home or in the hospital I often visit them.

I have spent many years studying to become a minister and learning how to help people. For me, this is the best way to serve God and my community.

Telephone Operator

I am a telephone operator. I wear my headset so I can talk and listen to you and still use my hands to do my work. People call me when they need help in making a phone call. Sometimes they need to know the right phone number for the person or business they are calling. I have a book of all the phone numbers in my area, and I search through my list to find the right one. When I do this I am called a directory assistance or information operator.

I can be a long-distance operator also. I can help people with long distance calls to places that are far away from where they are calling; other people may need help in knowing how much a long distance phone call will cost. I make the phone calls for them if it is necessary.

Some calls I get are emergency phone calls like when help is needed from the fire or police departments or from an ambulance. These are very important so I am taught how to help people on emergency phone calls.

I like to talk to people pleasantly and be of help to them. I have had special training to know how to use telephone equipment and how to give out information. I feel that I am good at my job and I enjoy it.

Firefighter

I am a fire fighter. My job is to protect people and property. At the fire station we get all kinds of calls. When it is an emergency, we call to get fire trucks and equipment to the person needing help as fast as we can. We have to practice getting into our fire fighting gear and to our places in the fire truck quickly.

When we are not responding to an emergency, we spend some of our time doing chores around the fire station. A lot of time goes into making sure our equipment is ready and working properly. An important part of my job is teaching other people life-saving techniques like CPR. Cardiopulmonary

resuscitation helps people who have stopped breathing to begin breathing again. I also work with people in the community teaching them about fire safety and prevention and inspecting fire fighting equipment, like examing fire extinguishers in the school cafeteria to make sure they are working.

I have had to study all about fire prevention and fire fighting so that I could pass a test to get my job. I have to be strong and able to make quick decisions. Fire fighting is dangerous work, but I am glad I have chosen it for my career.

Homemaker

I am a homemaker. I do a lot of different things in order to manage the house. An important part of my job is taking care of the family budget. I make sure we can pay our bills for food, housing, for our car, and other things we need to have. In addition to managing money, I try to plan meals that are healthy and enjoyable for all of us. I plan my shopping list carefully so I can buy what we need and what we like. I have learned how to shop and how to decide what to buy.

Often things around the house need repair. I know a little about carpentry, how to fix leaky faucets or broken lamps, and I like to take care of some things myself. If it needs major repair and I can't take care of it, I will call someone who is able to fix it. Sometimes I do other jobs too, like gardening or sewing. Some people who are homemakers have children in their family, and then caring for the children is very important to them.

Some of my time is spent cleaning the house, doing jobs like dusting or vacuuming that need to be done. Laundry is washed so we have clean clothes to wear. I know how to wash the different fabrics so that our clothes don't get ruined.

Even though managing our home is my career, each person in my family does different jobs around the house. I work hard, and there is a lot I need to know to make things run smoothly. I have no set hours of work and how I use my time is up to me. When all of us enjoy our home, I feel proud of my work and am glad I have chosen to be a homemaker.

News Reporter

I am a news reporter. You see me most when I am telling you the news on television or you may hear me on the radio. Much of my work is done, however, before I deliver the news stories to you.

First I have to find news, and I use many sources in locating good stories. I am often in the community talking to people like the mayor or going to press conferences. For stories from around the state, the nation, or the world, I watch the teletype machine which sends stories from other places. On a special telephone we have, I can also tape-record an interview or conversation with a person who is important to a news story.

I next have to choose stories to use on the air. Some stories are filed for later use or for other news reporters who have a special area assigned to them, such as sports news. When I prepare a story, it is sometimes necessary to get more information before it is ready.

Once I select the story and have all the information I need, I can write it so it is ready to read on the air. When the floor director gives me a cue, I begin to read the newscast to you from what has been written.

To be a news reporter it is important to speak and write well. Many of us have studied journalism or have gone to vocational school. I think my work is exciting, and I feel it is important to do it well.

APPENDIX C

FREQUENCY OF "MOST LIKE" AND "MOST DISLIKE" RESPONSES

TO OCCUPATIONS IN THE SELECT-A-WORKER INSTRUMENT

APPENDIX C

TABLE 7

FREQUENCY OF "MOST LIKE" RESPONSES[a] TO EACH OCCUPATION IN THE SELECT-A-WORKER INSTRUMENT BY SEX AND TREATMENT GROUP: PRETEST, POSTTEST 1, AND POSTTEST 2

	Pretest							
	T-1		T-2		T-3		T-4	
Occupations	B	G	B	G	B	G	B	G
Dentist	2	0	1	0	2	0	1	1
Gas Station Attendant	1	0	2	0	1	0	2	0
Telephone Operator[b]	0	1	0	1	0	0	1	0
Dressmaker	0	1	0	0	0	0	0	1
Minister[b]	1	0	0	0	0	0	0	1
Librarian	0	1	1	2	0	0	0	0
Laundry Worker	0	0	0	0	0	0	1	0
Musician[b]	1	0	0	0	0	1	0	1
Truck Driver	8	0	4	0	12	0	4	0
Teacher	0	8	0	6	3	9	0	4
Nurse[b]	0	6	0	0	0	4	0	2
Farmer	2	0	0	1	0	0	2	1
News Reporter[b]	1	0	0	1	0	0	0	0
Plumber	0	0	0	0	0	0	0	0
Secretary	1	1	0	1	0	1	0	1
Homemaker[b]	0	0	0	0	0	0	0	1
Business Owner	1	1	1	0	0	0	0	0
Ballet Dancer	0	1	0	1	0	3	0	5
Firefighter[b]	3	0	0	0	4	0	5	0
Grocery Checker	0	1	0	0	1	2	0	0

TABLE 7--(Continued)

Posttest 1								Posttest 2								Total	
T-1		T-2		T-3		T-4		T-1		T-2		T-3		T-4			
B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G		
1	0	1	0	3	0	3	1	2	0	0	2	3	0	3	1	22	5
0	0	1	0	0	0	1	0	1	0	1	0	1	1	0	0	11	1
0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2	5
0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	5
3	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	7	1
0	0	0	1	0	0	0	0	0	1	0	1	0	1	0	0	1	7
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	2	4
7	0	4	0	8	1	5	0	8	0	4	0	11	0	7	0	82	1
1	5	0	2	1	8	0	5	0	3	0	4	1	6	0	5	6	65
0	3	0	2	1	1	0	2	0	4	0	0	0	1	0	2	1	27
3	0	0	1	5	0	0	2	2	0	0	2	1	0	1	1	16	8
2	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	4	2
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
0	2	0	0	0	4	0	0	0	2	0	1	0	2	0	0	1	15
0	1	0	0	0	1	0	2	0	0	0	0	0	1	0	2	0	8
1	0	0	0	0	0	1	0	1	0	0	0	0	2	0	0	5	3
1	4	0	1	1	4	0	5	1	8	0	2	0	4	0	7	3	45
2	0	1	1	2	0	3	0	3	0	2	1	3	0	2	0	30	2
1	0	1	1	1	1	1	0	2	2	0	0	0	3	0	1	7	11
																201	216

[a] Includes only the first choice of the respondents.

[b] Modeled occupation in career education videotape.

APPENDIX C

TABLE 3

FREQUENCY OF "MOST DISLIKE" RESPONSES[a] TO EACH OCCUPATION IN THE SELECT-A-WORKER INSTRUMENT BY SEX AND TREATMENT GROUP: PRETEST, POSTTEST 1, AND POSTTEST 2

	Pretest							
	T-1		T-2		T-3		T-4	
Occupations	B	G	B	G	B	G	B	G
Dentist	1	3	1	1	2	0	3	0
Gas Station Attendant	0	1	0	3	0	2	0	3
Telephone Operator[b]	0	1	0	0	0	0	0	1
Dressmaker	1	0	0	0	2	0	1	0
Minister[b]	2	0	0	0	0	0	0	2
Librarian	0	0	1	0	0	1	0	0
Laundry Worker	2	0	0	0	0	1	0	1
Musician[b]	0	0	0	0	0	0	0	0
Truck Driver	0	5	0	0	0	4	1	1
Teacher	0	0	0	0	0	0	0	1
Nurse[b]	2	0	2	0	2	0	1	2
Farmer	3	1	1	0	1	4	2	1
News Reporter[b]	1	1	1	1	1	1	0	1
Plumber	1	3	0	2	1	1	0	1
Secretary	0	0	0	0	0	1	0	1
Homemaker[b]	0	0	0	0	2	0	1	1
Business Owner	0	1	0	0	0	2	0	0
Ballet Dancer	4	0	1	4	8	1	8	0
Firefighter[b]	1	4	0	2	1	3	1	4
Grocery Checker	3	0	2	0	2	0	0	0

TABLE 8--(Continued)

Posttest 1								Posttest 2								Total	
T-1		T-2		T-3		T-4		T-1		T-2		T-3		T-4			
B	G	B	G	B	G	B	G	B	G	B	G	B	C	B	G	B	G
1	1	0	0	1	2	1	0	0	1	0	1	0	0	0	0	10	9
1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	1	12
1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	0	6	1
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	3
1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	3	2
2	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	5	4
0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
1	5	1	2	0	8	1	1	1	4	0	0	0	7	1	2	6	39
1	0	1	0	0	0	1	4	0	2	1	0	1	1	0	1	5	9
4	1	0	0	0	1	2	0	2	0	2	0	2	2	1	1	20	7
0	3	1	0	3	2	1	0	1	3	1	0	0	0	0	0	14	14
0	2	1	0	3	0	0	0	1	0	0	0	0	0	0	1	8	10
5	4	0	3	1	3	0	4	2	3	0	4	2	5	0	5	12	38
0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	4	2
1	0	0	2	4	1	1	1	1	0	1	1	3	2	2	0	16	8
0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1	5
3	2	1	3	8	3	8	4	7	1	2	4	13	3	9	2	72	27
0	4	1	2	1	2	1	2	1	3	1	3	0	1	2	3	10	33
0	0	1	0	0	0	0	1	0	1	1	0	0	0	0	0	9	2
																213	222

[a]Total includes only first choice of respondents.

[b]Modeled occupations in career education videotape.